2009 Vascular Annual Meeting—Rapid Paced Paper Sessions

R1: Rapid Paced Paper Session I

RR1.

Pre-operative Use of Clopidogrel and Aspirin Versus Aspirin is Associated with a Stable Atherosclerotic Plaque Phenotype

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Objective: Thrombocyte-aggregation-inhibitors (TAI) exert beneficial effects in patients with significant carotid stenosis or symptomatic lesions on peri-operative and clinical outcome during follow up. However it is still unclear how TAIs exert their effects and if dual therapy is more opportune. Inflammation within the plaque is the main feature determining vulnerability and local restenosis. Besides the primary effects of TAIs on platelets, anti-inflammatory effects have been described, which may support plaque stability. For clinical perspectives, this could have beneficial effects on peri-operative morbidity and clinical outcome during follow up. This study compares the effects of preoperative TAIs with a combination on atherosclerotic plaque phenotype as a determinant for vulnerability.

Methods: Atherosclerotic plaques from 104 patients have been harvested during carotid endarterectomy. Patients were stratified regarding preoperative TAI-use; 1) no TAI, 2) Aspirin, 3), Aspirin and Clopidogrel. Plaques were assessed for macrophage infiltration, smooth muscle cell (SMC) content and lipid core size as measures for plaque stability. Biomarker levels of IL4, IL6, IL8, IL10 were determined as measures of the inflammatory status at protein level. The groups were age and gender matched and individual data regarding cardiovascular risk factors, clinical status and medication use were analyzed to exclude confounding.

Results: Pre-operative TAI-use is associated with reduced macrophage ($p<0.001$) and increased SMC ($p=0.03$) infiltration. The combination of Aspirin and Clopidogrel had additional effects on macrophage and SMC infiltration compared to Aspirin. On biomarker level, increased levels of anti-inflammatory IL4 ($p=0.02$) and IL10 were observed in the combination group compared to Aspirin. Inflammatory IL8 levels showed an evident tendency of reduction in the Aspirin group and even more in the combination group.

Conclusions: The combination of Aspirin and Clopidogrel has beneficial effects on the inflammatory status compared to Aspirin alone, indicating that it supports plaque stability. The outcome of this study may be a reason to study the effects of combination therapy on peri-operative morbidity, local restenosis and clinical outcome in a longitudinal trial following carotid surgery.

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RR2.

Do Anatomical Risk Factors Cause Patients to be at High Risk for Carotid Endarterectomy?

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Objective: The Center for Medicare and Medicaid Services (CMS) has been asked to consider anatomic risks factors that cause patients to be high risk for carotid endarterectomy (CEA). We evaluated the results of CEA in patients with anatomic high risk factors.

Methods: From an ongoing carotid endarterectomy registry (2003-2008) of 579 patients, 100 had anatomic factors leading to their inclusion in the high risk category for carotid endarterectomy (17.2%) including; 1. Previous carotid endarterectomy with recurrent stenosis, n=32. 2. Carotid endarterectomy in the presence of contralateral carotid occlusion, n=23. 3. Carotid endarterectomy for carotid stenosis located above C2 vertebra (high plaque), n=41. 4. Contralateral vocal cord palsy, radical neck dissection, prior radiation to neck or laryngectomy, n=4. The primary end point was perioperative stroke/death or myocardial infarction (MI) in 30 days and occurrence of stroke/death between 31 days and 52 months (Kaplan-Meier analysis). Minor stroke was defined as functional deficit with full recovery within three months or major stroke with minimal/no recovery after three months. The majority of CEAs (over 90%) were performed under cervical block anesthesia.

Results:

	High anatomic risk (n=100)	*Remaining group (n=479)*	*p Value*
Age (years)	69.7 +/− 8.6	72.2 +/− 8.3	p=.007*
Gender (male)	61	274	ns
CAD	54 (54%)	269 (56.2%)	ns
COPD	14 (14%)	52 (10.9%)	ns
DM	30 (30%)	133 (27.8%)	ns
HTN	84 (84%)	423 (88.3%)	ns
Nicotine Abuse	79 (79%)	331 (69.1%)	ns
Dyslipidemia	70 (70%)	361 (75.4%)	ns
Symptoms (TIA/Stroke)	20 (20%)	114 (23.8%)	ns

*Significant.

Incidence of adverse affects within 30 days

	Minor stroke	*Major stroke*	*Mi*	*Death*	*Combined stroke/ mi/death*	*p Value*
ANATOMIC HIGH RISK	2	1	0	1	4 (4%)	ns
REMAINING CEA	3	3†	3	4‡	9 (1.9%)	

†Major stroke resulted in death in two patients.

‡MI and death in two patients.

During late follow up, three patients had ipsilateral stroke, one had contralateral stroke in the remaining group and no patients in the anatomic high risk had late stroke (ns).

Conclusion: Results of carotid endarterectomy in patients with anatomic high risk factors are similar to those performed on patients without high risk factors.

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RR3.

Association of Postoperative Glucose Level with Non-Lethal Complications after Carotid Endarterectomy

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Objective: To determine if 30-day complications following carotid endarterectomy (CEA) are increased in the presence of 48-hour postoperative hyperglycemia.

Methods: This was a retrospective analysis of prospectively collected data by the Veterans Affairs National Surgical Quality Improvement Program (January 2000-December 2005) of all patients who underwent CEA repair. Average normal glucose was defined as 80-120mg/dl and was used as the reference for comparison with all other glucose ranges: >120-160mg/dl, >160-200mg/dl, >200mg/dl. The measured outcomes included adjusted odds ratio (OR) of myocardial infarction (MI), cerebrovascular accidents (CVA), respiratory complications, and incidence of two or more complications. To adjust for differences in demographics, operative factors, and preoperative comorbidities, we used multiple logistic regression.